What is claimed is:

1. A method of manufacturing an electrode over a substrate, the method comprising:

(a) forming initial crystal nuclei of an electrode material over the substrate in an island pattern; and

(b) forming grown layers of the electrode material by causing the initial crystal nuclei to be grown,

wherein a substrate temperature in the step (a) is higher than a substrate temperature in the step (b).

2. The method of manufacturing an electrode as defined in claim 1,

wherein the substrate temperature in the step (a) is set at a temperature from 200°C to 600°C, and

wherein the substrate temperature in the step (b) is set at a temperature lower than 200°C.

3. A method of manufacturing an electrode over a substrate, the method comprising:

(a) forming initial crystal nuclei of an electrode material over the substrate in an island pattern; and

(b) forming grown layers of the electrode material by causing the initial crystal nuclei to be grown,

wherein energy of particles of the electrode material when forming the initial crystal nuclei is higher than energy of the particles of the electrode material when forming the grown layers.

4. The method of manufacturing an electrode as defined in claim 1,

wherein the initial crystal nuclei are formed by using a sputtering method, and

wherein the grown layers are formed by using an evaporation method.

5. The method of manufacturing an electrode as defined in claim 1,

wherein a plurality of the electrodes are stacked by repeatedly performing the steps (a) and (b) a plurality of times.

6. The method of manufacturing an electrode as defined in claim 1, further comprising performing heat treatment after the step (b).

7. The method of manufacturing an electrode as defined in claim 1,

wherein the electrode material is at least one of Pt, Ir, Ru, Cu, Ag, IrO_2, RuO_2, TiN, TaN, and $PbPt_3$.

8. The method of manufacturing an electrode as defined in claim 1, further comprising:

filling at least gaps at grain boundaries of the grown layers with an electrode material for reducing diffusion after the step (b).

9. The method of manufacturing an electrode as defined in claim 8,

wherein the electrode material for reducing diffusion is at least one of Ir, IrO_2, Ru, RuO_2, HfO_2, and Al_2O_3.

10. An electrode manufactured by the method as defined in claim 1.

11. A ferroelectric memory comprising the electrode as defined in claim 10.

12. A semiconductor device comprising the ferroelectric memory as defined in claim 11.